

WHAT IS CLAIMED IS:

- 1 1. A secondary battery comprising:
2 an electrode unit having a first electrode plate, a second electrode plate, a separator
3 interposed therebetween, and first and second electrode tabs respectively extending from the first
4 and second electrode plates;
5 a can adapted to accommodate the electrode unit and an electrolytic solution; and
6 a cap plate adapted to seal the can and having an electrolytic solution inlet, wherein the
7 electrolytic solution inlet has an area on one surface of the cap plate different from that on another
8 surface of the cap plate.
- 1 2. The secondary battery of claim 1, wherein the electrolytic solution inlet has an area
2 on a surface facing the inside of the can greater than that on a surface facing the outside of the can.
- 1 3. The secondary battery of claim 1, wherein the electrolytic solution inlet has an area
2 on a surface facing the outside of the can greater than that on a surface facing the inside of the can.
- 1 4. The secondary battery of claim 1, further comprising a channel adapted to facilitate
2 injection of an electrolytic solution in the neighborhood of the electrolytic solution inlet.
- 1 5. The secondary battery of claim 4, wherein one end of the channel is connected to
2 the electrolytic solution inlet.

1 6. The secondary battery of claim 4, wherein the channel is linearly shaped and
2 arranged spirally in the neighborhood of the electrolytic solution inlet.

1 7. The secondary battery of claim 4, wherein the channel has a depth in a range of 0.1
2 to 0.5 mm.

1 8. The secondary battery of claim 1, wherein the electrolytic solution inlet has a
2 sloping cross-section.

1 9. The secondary battery of claim 1, wherein the electrolytic solution inlet has a
2 stepped portion recessed to a predetermined depth in the neighborhood of the electrolytic solution
3 inlet.

1 10. The secondary battery of claim 9, wherein the stepped portion has a depth in a range
2 of 0.1 to 0.5 mm.

1 11. The secondary battery of claim 1, wherein the first electrode tab is electrically
2 connected to a terminal pin connected to the cap plate and arranged to be insulated therefrom, and
3 the second electrode tab is welded to the cap plate at a position between the terminal pin and the
4 electrolytic solution inlet.

1 12. The secondary battery of claim 1, wherein the first electrode tab is electrically
2 connected to a terminal pin connected to the cap plate and arranged to be insulated therefrom, and
3 the second electrode tab is welded to the cap plate at a position opposite to the electrolytic solution
4 inlet with respect to the terminal pin.

1 13. The secondary battery of claim 12, further comprising a safety vent arranged at a
2 position opposite to the terminal pin with respect to the second electrode tab of the cap plate, the
3 safety vent being adapted to rupture when the internal pressure of the sealed can increases to a
4 level greater than a predetermined allowed level.

1 14. A secondary battery comprising:
2 an electrode unit having a first electrode plate, a second electrode plate, a separator
3 interposed therebetween, and first and second electrode tabs respectively extending from the first
4 and second electrode plates;
5 a can adapted to accommodate the electrode unit and an electrolytic solution;
6 a cap plate adapted to seal the can;
7 a terminal pin connected so as to be insulated from the cap plate to which the first electrode
8 tab is electrically connected; and
9 an insulating plate provided on an inner surface of the cap plate and extending in one
10 direction of the cap plate and arranged to insulate the terminal pin from the cap plate;

11 wherein the second electrode tab is welded to the cap plate at a position opposite to the
12 electrolytic solution inlet with respect to the terminal pin.

1 15. The secondary battery of claim 14, further comprising an electrolytic solution inlet
2 arranged to overlap the insulating plate, and an injection hole corresponding to the electrolytic
3 solution inlet arranged in the insulating plate.

1 16. The secondary battery of claim 15, wherein the injection hole has an area on one
2 surface of the insulating plate greater than that on another surface of the insulating plate.

1 17. The secondary battery of claim 16, wherein the injection hole has an area on a
2 surface facing the inside of the can greater than that on a surface facing the outside of the can.

1 18. The secondary battery of claim 16, wherein the injection hole has an area on a
2 surface facing the outside of the can greater than that on a surface facing the inside of the can.

1 19. The secondary battery of claim 15, further comprising a channel adapted to facilitate
2 injection of an electrolytic solution in the neighborhood of the injection hole.

1 20. The secondary battery of claim 19, wherein one end of the channel is connected to
2 the injection hole.

1 21. The secondary battery of claim 19, wherein the channel is linearly shaped and
2 arranged spirally in the neighborhood of the injection hole.

1 22. The secondary battery of claim 19, wherein the channel has a depth in a range of
2 0.1 to 0.5 mm.

1 23. The secondary battery of claim 15, wherein the injection hole has a sloping
2 cross-section.

1 24. The secondary battery of claim 15, wherein a stepped portion recessed to a
2 predetermined depth is arranged in the neighborhood of the injection hole.

1 25. The secondary battery of claim 24, wherein the stepped portion has a depth in a
2 range of 0.1 to 0.5 mm.

1 26. The secondary battery of claim 14, further comprising a safety vent arranged at a
2 position opposite to the terminal pin with respect to the second electrode tab of the cap plate, the
3 safety vent adapted to rupture when the internal pressure of the sealed can increases so as to be
4 greater than a predetermined allowed level.

1 27. A secondary battery comprising:

2 an electrode unit having a first electrode plate, a second electrode plate, a separator
3 interposed therebetween, and first and second electrode tabs respectively extending from the first
4 and second electrode plates;

5 a can adapted to accommodate the electrode unit and an electrolytic solution;

6 a cap plate adapted to seal the can and having an electrolytic solution inlet;

7 a terminal pin connected so as to be insulated from the cap plate to which the first electrode
8 tab is electrically connected; and

9 an insulating plate arranged on an inner surface of the cap plate and extending in one
10 direction of the cap plate and adapted to insulate the terminal pin from the cap plate;

11 wherein the electrolytic solution inlet is arranged to overlap the insulating plate, and an
12 injection hole corresponding to the electrolytic solution inlet is arranged in the insulating plate.

1 28. The secondary battery of claim 27, wherein the injection hole has an area on one
2 surface of the insulating plate greater than that on another surface of the insulating plate.

1 29. The secondary battery of claim 28, wherein the injection hole has an area on a
2 surface facing the inside of the can greater than that on a surface facing the outside of the can.

1 30. The secondary battery of claim 28, wherein the injection hole has an area on a
2 surface facing the inside of the can greater than that on a surface facing the outside of the can.

1 31. The secondary battery of claim 27, further comprising a channel adapted to facilitate
2 injection of an electrolytic solution in the neighborhood of the injection hole.

1 32. The secondary battery of claim 31, wherein one end of the channel is connected to
2 the injection hole.

1 33. The secondary battery of claim 31, wherein the channel is linearly shaped and
2 arranged spirally in the neighborhood of the injection hole.

1 34. The secondary battery of claim 31, wherein the channel has a depth in a range of
2 0.1 to 0.5 mm.

1 35. The secondary battery of claim 27, wherein the injection hole has a sloping
2 cross-section.

1 36. The secondary battery of claim 27, wherein a stepped portion recessed to a
2 predetermined depth is arranged in the neighborhood of the injection hole.

1 37. The secondary battery of claim 36, wherein the stepped portion has a depth in a
2 range of 0.1 to 0.5 mm.